

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Phillip Kent Niccum §
§ Examiner: Boyer, Randy
Serial No.: 10/711,308 § Group Art Unit: 1797
§
Filed: September 9, 2004 § Docket No: 04-10
§
For: Self-Stripping FCC Riser Cyclone § Confirmation No.: 5307
§
Customer No.: 32583 § Date: July 8, 2009

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF UNDER 37 C.F.R. § 41.41

Dear Examiner:

This reply is submitted in response to the Examiner's Answer dated May 8, 2009. Applicant respectfully requests reconsideration of the application in light of the following remarks.

REMARKS

This reply is submitted in response to the Examiner's Answer dated May 8, 2009. Claims 1, 5, 6, 21-24, 26, and 27 stand rejected under 35 U.S.C. § 103(a) over Parker (U.S. Patent No. 4,692,311; hereafter "Parker"). Claims 1, 5, 6, 21-24, 26, and 27 also stand rejected under 35 U.S.C. § 103(a) over *Parker* in view of Simpson (U.S. Patent No. 7,108,138; hereafter "Simpson") and as further evidenced by Dewitz (U.S. Patent No. 5,869,008; hereafter "Dewitz") or Ko (N.W.M Ko & A.S.K. Chan, *In the intermixing Region Behind Circular Cylinders With Stepwise Change of the Diameter*, 9 Experiments in Fluids 213-221 (1990); hereafter "Ko") or Mori (U.S. Patent No. 6,041,754; hereafter "Mori") or Wasif (U.S. Publication No. 2005/0016178; hereafter "Wasif") or Hwang (U.S. Publication No. 2005/0183664; hereafter "Hwang").

I. ***Parker* does not teach, show, or suggest all the limitations of any pending claim.**

Parker does not teach, show, or suggest all the limitations of any pending claim. At the very least, *Parker* does not teach, show, or suggest a particulate stripping unit having a cyclone section and a stripping section, where the stripping section has a cross-sectional area less than a cross-sectional area of the cyclone section, as required in every claim. The Examiner has noted this same deficiency numerous times but still maintains this rejection, which is clearly erroneous.

Simply because a claimed device or process uses a known scientific principle does not, of itself, make that device or process obvious. In re Brouwer, 77 F.3d 422, 37 USPQ2d 1663 (Fed. Cir. 1996). Furthermore, it is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based. MPEP 2144.03 *citing Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697 ("[T]he Board cannot simply reach conclusions based on its own understanding or experience-or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings."). As the court held in *Zurko*, an assessment of basic knowledge and common sense that is not based on any evidence in the record lacks substantial evidence support. *Id.*

Here, the Examiner's only support for what is common knowledge in the art is *Ko, Mori, Wasif, Hwang*, and *Simpson*. But neither *Ko, Mori, Wasif*, nor *Hwang* mention what would happen to the vortices within *Parker*, if *Parker* were modified to include a stripping section 27 that has a cross-sectional area less than the cross-sectional area of the cyclone section 24. Indeed, the only reference (*Simpson*) having anything remotely to do with separating particles teaches away from modifying *Parker's* stripping section 27 to have a cross-sectional area less than the cross-sectional area of the cyclone section 24.

Therefore, *Parker* does not teach, show, or suggest all the limitations of any pending claim, and the Examiner has provided no evidentiary support in the record to support the rejection based on 103 obviousness. Withdrawal of the rejection is respectfully requested.

II. The combination of *Simpson* and *Parker* teaches away from the claimed invention.

The combination of *Simpson* and *Parker* teaches away from the claimed invention. *Simpson* is directed to a particle classifier that requires particle carryover. A particle classifier is not the same as a separator where particle carryover is to be avoided. *Simpson* very clearly explains that increasing the diameter of the cyclone increases the strength of the interior vortex, which leads to particle carryover and reduced separation efficiency. See, *Simpson* at col. 6, line 55 to col. 7, line 2. In direct contrast to *Simpson*, *Parker* is directed to a separator where particle carryover is to be avoided, and requires an extremely weak interior vortex. See e.g., *Parker* at col. 3, ll. 62-66. This is the exact opposite of *Simpson*. Indeed, both *Simpson* and *Parker* teach away from the other. And no one of ordinary skill in the art would have been motivated to modify *Parker* to include a larger cyclone diameter as taught by *Simpson*, because *Simpson* very clearly teaches that such modification would increase carryover, which is the exact opposite of what *Parker* is trying to achieve.

Therefore, the combination of *Simpson* and *Parker* teaches away from the claimed invention. *Dewitz, Ko, Mori, Wasif*, and *Hwang* do nothing to remedy the deficiencies of *Simpson* and *Parker*. Withdrawal of the rejection and allowance of the claims is respectfully requested.

III. The Examiner's modification of *Parker* would render *Parker* unsuitable for its intended purpose.

The Examiner's modification of *Parker* would render *Parker* unsuitable for its intended purpose. As noted above, *Simpson* very clearly explains that increasing the diameter of the cyclone increases the strength of the interior vortex, which leads to particle carryover and reduced separation efficiency. See, *Simpson* at col. 6, line 55 to col. 7, line 2. In direct contrast to *Simpson*, *Parker* is directed to a separator where particle carryover is to be avoided, and requires a weak interior vortex. See e.g., *Parker* at col. 3, ll. 62-66. This is the exact opposite of *Simpson*. Indeed, modifying *Parker* according to *Simpson* would clearly render *Parker* unsuitable for its intended purpose. *Dewitz*, *Ko*, *Mori*, *Wasif*, and *Hwang* do nothing to remedy the deficiencies of *Simpson*. Therefore, the rejection of claims 1, 5, 6, 21-24, and 27 under 35 U.S.C. § 103(a) over *Parker* in view of *Simpson* and as further evidenced by *Dewitz*, *Ko*, *Mori*, *Wasif*, or *Hwang* is improper. For at least this reason, withdrawal of the rejection and allowance of the claims is respectfully requested.

IV. The Examiner's assertion that a separator having a stripping section that is smaller in cross-sectional area than a cyclone section is standard (or conventional) in the art of cyclonic separators is not supported by the prior art of record.

The Examiner's assertion that a separator having a stripping section that is smaller in cross-sectional area than a cyclone section is standard (or conventional) in the art of cyclonic separators is not supported by the prior art of record. *Simpson* has been discussed and distinguished above. The Examiner's reliance on *Fandel* (cyclones 30, 100, 136 shown in Figures 1, 2, and 3, respectively) and *Dewitz* at (cyclones 30 shown in Figures 1 and 3) as support for such assertion is incorrect. None of the cyclones 30, 100, 136 disclosed in *Fandel* include a stripping section nor does the cyclone 30 disclosed in *Dewitz* include a stripping section. The "inwardly converging bottom portion" of cyclones 30, 100, 136 disclosed in *Fandel* and cyclone 30 disclosed in *Dewitz* are part of the cyclone section and have nothing to do with a stripping section. For example, the "inwardly converging bottom portion" of cyclones 30, 100 disclosed in *Fandel* connects to dip pipes 38, 108, respectively. See, *Fandel* at col. 5, ll. 29-32 and Figure 1 and col. 6, ll. 32-37 and Figure 2. The dip pipes 38, 108 are not stripping sections. In Figure 1

of *Fandel*, the stripper 46 is disposed completely apart from the cyclone 30 and clearly has a much larger cross-sectional area than the cyclone 30. See, *Fandel* at Figure 1. Similarly, *Dewitz's* cyclone 30 is connected to a dip pipe 40 that extends into a fluidized stripper bed 22 that also has a much larger cross-sectional area than the cyclone 30. See, *Dewitz* at col. 4, line 65 to col. 5, line 8 and Figure 1.

Therefore, neither *Fandel* nor *Dewitz* teaches, shows, or suggests a stripping section having a cross-sectional area less than a cross-sectional area of a cyclone section. And *Ko*, *Mori*, *Wasif*, and *Hwang* do nothing to remedy the deficiencies of *Simpson*, *Fandel*, and *Dewitz*. As such, the rejection of claims 1, 5, 6, 21-24, and 27 under 35 U.S.C. § 103(a) over *Parker* in view of *Simpson* and as further evidenced by *Dewitz*, *Ko*, *Mori*, *Wasif*, or *Hwang* is improper. Withdrawal of the rejection and allowance of the claims is respectfully requested.

V. *Simpson* is non-analogous prior art.

Simpson is non-analogous prior art. *Simpson* is directed to a particle classifier that requires particle carryover. A particle classifier is not the same as a separator where particle carryover is to be avoided. In direct contrast, *Parker* is directed to a separator where particle carryover is to be avoided, and requires an extremely weak interior vortex. See e.g., *Parker* at col. 3, ll. 62-66. This is the exact opposite of *Simpson*. Classifying particles according to size has nothing to do with the separation of particles from a carrier fluid and then stripping those separated particles of residual carrier fluid.

Indeed, *Parker* and *Simpson* are directed toward two very different processes, each having distinct and opposite objectives. As such, one of ordinary skill in the art would not have logically consulted the classifier of *Simpson* when attempting to separate particles from a carrier fluid. For at least this reason, the rejections of the claims under 35 U.S.C. § 103(a) as being unpatentable in view of *Simpson* is improper and must be withdrawn. For at least this reason, withdrawal of the rejection and allowance of the claims is respectfully requested.

Conclusion

The claims are patentable over *Parker*, or alternatively over *Parker* in view of *Simpson* and as further evidenced by *Dewitz* or *Ko* or *Mori* or *Wasif* or *Hwang*. Allowance of the claims is respectfully requested.

Respectfully submitted,



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